Spec Development Roadmap

Developers Conference

November 28, 2000

Burlingame, CA

Incremental Approach

- **Six phases of DAFS interoperability**
  - **1. Communication**
  - **2. Basic File System**
  - **3. Advanced File System**
  - **4. Full Environment Features**
  - **5. Full Security Features**
  - **6. Application**

- **Two tracks**
  - **Interoperability Track: finalize definition of core DAFS features**
    - **e.g., implement and test Phase 1 and Phase 2A, maybe 2B**
  - **Features Definition Track: finalize feature set**
    - **flush out DAFS requirements and agree on final list of features**

Phase 1: Communication

- ## 1A. Trivial Communication
  - connect, single channel
  - null messages
  - disconnect

- ## 1B. Simple Communication
  - authenticate, simple
  - bind additional channels (?)

- ## Requirements
  - VI provider
  - Solid core definition of channel and session
  - Basic DAFS Client and Server communication code

Phase 2: Basic File System

- ## 2A. Core File System functions
  - lookup, open (simple semantics), read, write, close
  - read/write operations include both inline and direct
  - bind additional channels (RDMA-read channel)

- ## 2B. Basic File System operability
  - create, getattr/setattr (basic semantics), link, basic lock ops, readdir, readlink, rename, remove

- ## Additional Requirements
  - Server-side File System

- ## Assumptions
  - Many aspects of buffer management are negotiated; opportunity for initial testing simplifications

Phase 3: Advanced File System

- ## 3A. Advanced Performance Operations
  - cache_hint, commit, read_prefetch, write_batch
  - delegation and back-control channel ops
  - remaining direct and inline operations

- ## 3B. Additional File System Features
  - verify, open_attr, open_downgrade
  - advanced open semantics
  - full getattr/setattr semantics
  - credentials operations, access

- ## Additional Requirements
  - testing requires increased investment, perhaps advanced workloads and APIs?

Phase 4: Full Environment Features

- ## 4A. Failure Recovery
  - **Response Cache operations**
  - **Advanced Locking (persistent, auto-rollback)**

- ## 4B. Failover, Migration
  - **get_fsattr**
  - **FS_Locations management**

- ## 4C. Fencing

- ## Additional Requirements (beyond Phase 2)
  - **solid core definition of "data set" object**
  - **complete definition of these features**
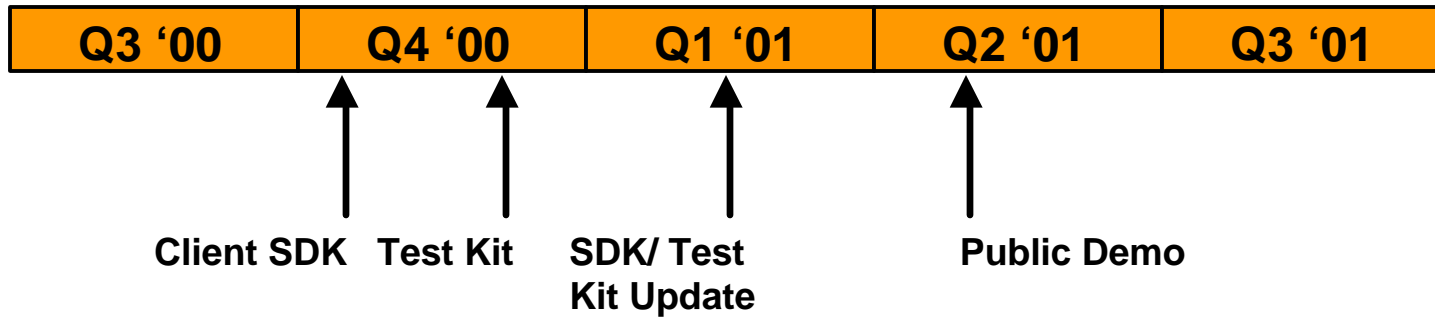 - **multiple DAFS clients and/or multiple DAFS servers**

Phase 5: Full Security Features

- **5. Full Security Support**
  - **Server Authentication**
  - **Authentication Flavors**
  - **Secinfo operation**
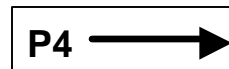 - **Connect and Authenticate optimization**

- **Additional Requirements (beyond Phase 2)**
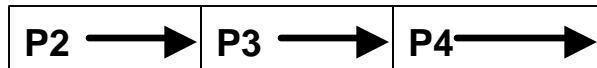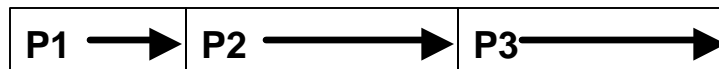 - **Security model support**

Roadmap

Q3 '00	Q4 '00	Q1 '01	Q2 '01	Q3 '01

Client SDK   Test Kit   SDK/ Test Kit Update   Public Demo

Define   P4 →

Design   P2 →   P3 →   P4 →

Implement   P1 →   P2 →   P3 →

or

P4 →